Installation and Operation Manual

DVD-024-0x-x

Digital Video Disc Player

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Service Bulletin List

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SECTION I – GENERAL INFORMATION

1.0 Introduction

This manual contains information for the proper installation and operation of Audio International's (AI) Digital Video Disc Player, Model # DVD-024-0x-x. The "-x" suffix in the model number designates the type of connector utilized; "-1" = Positronic and "-2" = D-Subminiature. Also included are mechanical and electrical characteristics of the unit.

2.0 Purpose of the Equipment

2.1 Audio International's DVD-024-0x-x is a high-quality video disc player specifically designed to meet the special requirements of aircraft use. This video disc player represents a digital medium with the capacity to incorporate an entire feature film – up to 133 minutes of full-motion video on a 5" Multi-Regional DVD compact disc. In addition, the DVD unit plays standard 5" Multi-Regional audio CDs.

2.2 The DVD-024-0x-x can be mounted in a cabinet or bulkhead. A unique strapping feature allows up to eight (8) similar devices to be used in the same system at the same time while maintaining independent control.

2.3 The DVD-024-0x-x is not compatible with DVD-R, DVD-R/W, CD-R, or CD-R/W discs. Since DVD disc format standards are constantly evolving, some of the more recent DVD discs may not play properly or may cause the unit to malfunction. Audio International does not guarantee the DVD-024-0x-x is compatible with all DVDs.

3.0 Operational Features

- Operates directly from +28 VDC
- Plays Multi-Regional CDs
- Front panel controls
- NTSC output
- Optional infrared remote controllable
- High fidelity, digital stereo audio output
- Audio output level of 2 VRMS into not less than 600 Ω, factory preset
- Full range (4 Hz to 20 kHz) frequency response
- Eight (8) language and 32 subtitle options (dependent upon user-supplied disc capabilities)
- Frame-by-frame video advance and reverse
- Choice of camera viewing angles (dependent upon disc capabilities)
- Plays video disc sizes of 8 or 12 cm
- Standard plating options for front bezel
- Easy to mount and connect
- AI's proprietary RS-485 data bus compatible
- Compact, lightweight package
- Digital audio fiber optic output capability

4.0 Optional Equipment

The DVD-024-0x-x can be optionally controlled by infrared remote or AI's touch screen panels. Digital codes allow the unit to interface with an infrared handheld remote via an infrared receiver, IFR-9A or IFR-485. Multiple units can be controlled independently using available programming pins. Playback options with remote or touch screen include play, stop, pause, search (forward and reverse), and skip (forward and reverse).

Contact your AI representative for details.

5.0 Technical Specifications

Physical Specifications	
Housing	Aluminum
Weight	4.45 lb / 2.02 kg
Dimensions (l x w x h)	9.91" x 8.51" x 3.32" 25.2 cm x 21.6 cm x 8.43 cm

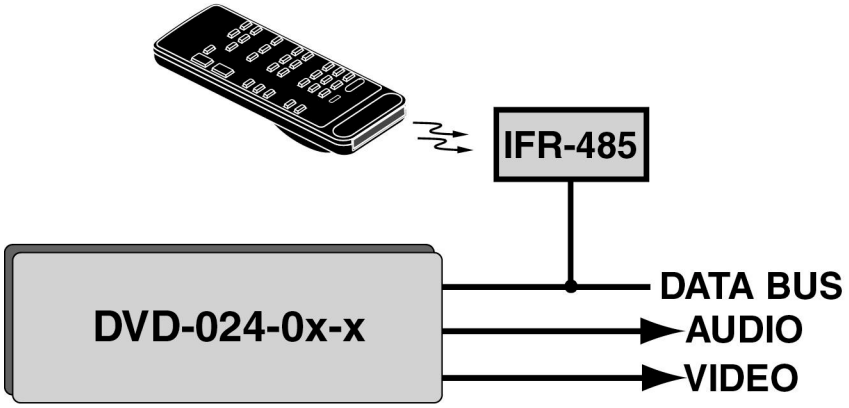
6.0 Application

6.1 Introduction

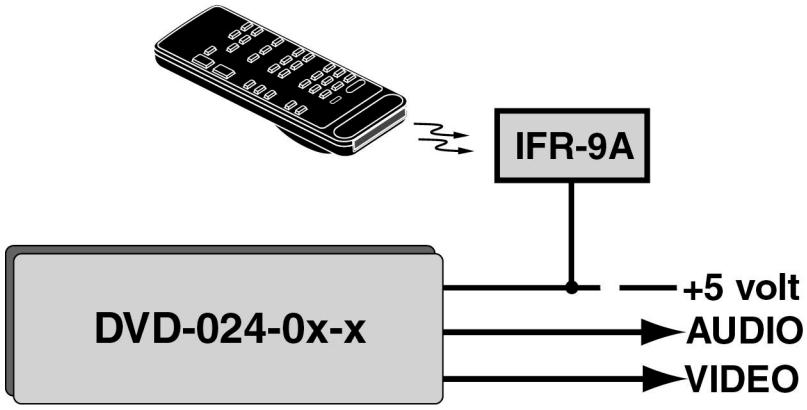
The DVD-024-0x-x operates between +18 and +32 VDC with a power consumption of less than 1A at +28 VDC. The unit is capable of withstanding power interruptions in duration of 200 msec or less. DVD-024-0x-x's video output has nominal impedance of 75 Ω with an output level rating of 1 V(p-p) and is not capable of level adjustment. Stereo audio output is provided at a nominal impedance of 600 Ω with an output level rating of 2 VRMS (factory preset) for each output channel.

6.2 Typical Application

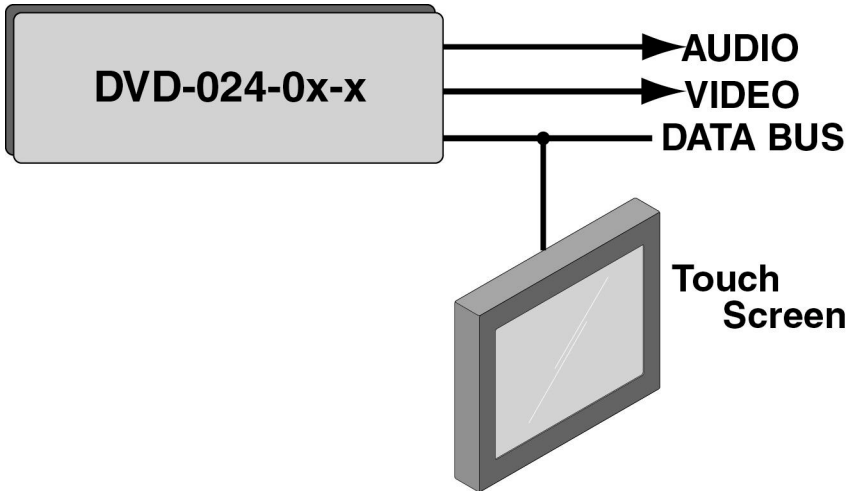
6.2.1 This system is fully compatible with Audio International's proprietary RS-485 digital data bus system. It can be configured for IR remote control utilizing AI's remote control unit AI-RCx-17xxxx and IFR-485.



6.2.2 The unit can also be configured for IR remote control utilizing AI's remote control unit AI-RCx-17xxxx and IFR-9A. This following configuration utilizes a +5 VDC digital logic level for activation of infrared commands. Connection to multiple IFR-9A units utilizing the +5 VDC digital logic level connection requires an external Schottkey diode at each IFR-9A unit. This will prevent signal loading. Contact AI for details.



6.2.3 The unit can also be configured for Touch Screen or remote panel control (i.e. entertainment control panels). The panels are on AI's proprietary RS-485 digital data bus system and configured to control the operational features of the DVD-024-0x-x.



7.0 Video/Audio Disc Care

7.1 **When** playing a disc for the first time, check that there are no burrs stuck in the center hole of the disc.

7.2 **Do not** touch the playback side of the disc. Do not apply tape to either side of the disc.

7.3 **Do not** store discs in hot locations or in areas exposed to direct sunlight. Do not store in damp, moist areas.

7.4 **Do not** stack loose discs or prop them against anything. Remove discs from the player and return them to their cases after each use.

7.5 **Do not** clean with solvents or other chemicals. To clean discs, wipe gently with a soft, lint-free cloth. Start from the center of the disc and wipe outward in a circular motion. Dust or fingerprints on the disc may cause sound or picture difficulties.

7.6 **Do not** use liquid or aerosol cleaners on the DVD unit. When cleaning heavy dirt from the unit, soak a soft cloth in a weak detergent solution. Wring out excess liquid and gently wipe the unit. Dry the unit thoroughly with a soft cloth.

SECTION II - INSTALLATION

1.0 Prior to Installation

1.1 During the design and layout of the aircraft cabin, careful consideration of the location of this and all other audio/visual modules is necessary. Some of the items to be considered include:

- Space
- Available power supply
- Environmental conditions (temperature, humidity, etc.)
- Length of cable runs
- Location of other aircraft systems (oxygen delivery)

1.2 The DVD-024-0x-x shall be installed to conform to the standards designated by the customer, installing agency, and existing conditions as to the unit location and type of installation.

1.3 Mounting screws are required to secure the unit. Long low-level audio runs may introduce noise into the audio signal. Refer to Section II, 9.0, for mounting hole diameters and configurations.

1.4 All headphone amplifiers and line level amplifiers should be located no more than three (3) feet away from source equipment.

1.5 The DVD-024-0x-x shall NOT be mounted on its side, at an angle, or in an inclined position.

1.6 The installing agency shall supply and fabricate all external cables to the DVD-024-0x-x. The length and routing of external cables shall be carefully studied and planned before attempting installation of the unit. Allow adequate space for installation of cable and connectors. Mating connectors are the responsibility of the installing agency. Correct pin assignments as outlined in Section II, 6.7 are the responsibility of the installing agency.

1.7 Temperature consideration of the installation area is important. Operating temperature range for the unit is between -15° and +55° Celsius.

2.0 Unpacking and Inspection

2.1 Carefully open the packaging and remove the DVD-024-0x-x. Verify that all components have been included in the package per the packing list. Inspect the unit for shipping damage.

2.2 If damage has occurred during shipping, a claim should be filed with Audio International WITHIN 24 hours and a **Return Request Authorization Number** shall be obtained from AI. Refer to the front cover of this manual for address and telephone number of Audio International, Inc. Repackage the unit in its original packaging materials and return it to AI following instructions given by the AI representative. If no return is necessary, retain the packing list and the packing materials for storage.

3.0 *Cautions & Warnings*

3.1 It is important to do a pin-to-pin power and ground check on all connectors. Ensure that power and ground are applied only where specified. Damage to the unit may result if power or ground is applied to the wrong points.

3.2 **DO NOT** connect or disconnect the unit while power is applied.

3.3 **DO NOT** remove any factory-installed screws. Damage to the unit may result and void any warranties.

3.4 **DO NOT** drop the unit or subject it to strong shocks. The unit contains glass parts that may break or crack.

3.5 **DO NOT** place foreign objects into openings. Contact with foreign objects may result in dangerous electric shock.

3.6 **DO NOT** place near strong magnetic fields, radiators, or other heat sources.

3.7 **DO NOT** use this unit other than for its intended purpose. Doing so might lead to electric shock or injury.

3.8 **DO NOT** use near water, moisture, or volatile sprays. Do not use any type of solvent when cleaning (surface damage may occur).

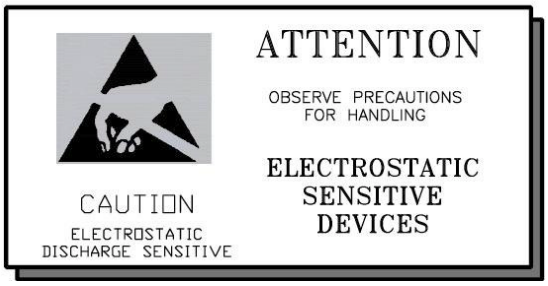
3.9 **DO NOT** look directly into the laser beam through the disc tray opening. Eyesight may be damaged.

3.10 **DO NOT** place fingers in disc tray when the tray is moving. Tray may close on fingers, causing injury.

3.11 **DO NOT** expose to sun or bright light. Damage to the sensor may result.

3.12 **NO** scheduled maintenance is required to ensure continued airworthiness.

3.13 **ESD** (Electro Static Discharge) guidelines shall be followed.



4.0 Wiring Requirements

4.1 Introduction

The installing agency shall supply and fabricate all external cables. The length and routing of external cables shall be carefully studied and planned before attempting installation of the equipment. Allow adequate space for installation of cable and connectors. Avoid sharp bends and placing cables near aircraft control cables. Maintain a minimum clearance of three (3) inches from any control cable. If wiring is run parallel to combustible fluid or oxygen lines, maintain a separation of six (6) inches between the lines.

4.2 Power Wires

All power and ground wires shall be 22 AWG, MINIMUM, shielded twisted pair with the shield properly bonded at one end only. Power ground wires shall be bonded to electrically conductive chassis mounting point with <1 Ω resistance or <50 Ω impedance. Twisted shielded pair cable shall be in accordance with the standard military specification of **MIL-DTL-27500** or equivalent.

4.3 Video Lines

Composite video connections shall be shielded coaxial cable in accordance with the military specifications of **M17/94-RG179** or equivalent.

4.4 AI's Proprietary RS-485 Data Bus

4.4.1 The DVD-024-0x-x is designed to interface with other Audio International equipment via AI's proprietary RS-485 serial data bus. The data bus shall be implemented using a twisted shielded pair cable in accordance with the standard military specification of **MIL-DTL-27500** or equivalent. The wire size for the conductors in this cable shall be 22 AWG, MINIMUM. Shield pins are available for connecting data bus shields when required. Shield terminations shall be made as close to the connector pin as possible.

4.4.2 All modules on AI's proprietary RS-485 data bus shall be connected in a 'daisy-chain' configuration. AI's proprietary RS-485 data bus specification is available upon request.

4.5 Digital Audio Lines

All digital audio wiring shall be 100/140 μm (core/cladding) multi-mode fiber optic cabling. All fiber optic connectors/couplers shall use ceramic ferrules to minimize adverse reflection effects. BRAND-REX P/N: OC-1011 or equivalent fiber optic cabling shall be used for all digital audio wiring.

4.6 Analog Audio Lines

All analog audio wiring shall be 22 AWG (MINIMUM) twisted, shielded cable in accordance with the standard military specification of **MIL-DTL-27500** or equivalent unless otherwise specified.

5.0 Physical Characteristics

5.1 Refer to Section II, 9.0 for unit dimensions and attachment points.

5.2 When mounting the unit, allow sufficient space for mating connectors.

5.3 Allow a MINIMUM of one (1) inch of air space around the unit to allow for proper air circulation.

6.0 Electrical Characteristics

6.1 Electrical Specifications:

Electrical	Power	750 mA @ +28 VDC
	Operating Voltage Range	+18 to +32 VDC
	Data Bus Type	AI Proprietary RS-485
	Audio Frequency Response	4 Hz to 20 kHz
	Audio Output	2 V_{RMS} (factory preset) into not less than 600 Ω load
	Audio Signal to Noise Ratio	>96 dB (NOMINAL)
	Dynamic Range	>93 dB
	Video Output	1 $V_{(p-p)}$ into 75 Ω, NTSC ONLY
	Video Input Format	Multi-Regional (NTSC & PAL)
	Infrared Signal Input	+5 V digital logic level

6.2 The DVD-024-0x-x utilizes one (1) 15-pin connector for electrical connections. This connector provides power, data bus control, infrared input, and three (3) infrared strapping pins for alternate configuration of infrared digital command codes.

6.3 Standard configuration requires no infrared strap pins to be connected. Each different type of AI source equipment can be configured to accept one (1) of four (4) different sets of infrared codes. To change the code settings, connect one (1) of the strap pins to the strap common (never connect more than one (1) strap pin to the strap common). Three (3) strap pins are available to allow the infrared codes to be configured.

6.4 The video output connector (BNC1) allows for proper video output to the video distribution system.

6.5 The infrared input provides a ground reference connection (-). For optimum infrared signal transmission, this ground reference connection should connect along with the chassis ground reference connection (pin 2) to the same ground termination location as that of the IFR-9A or IFR-485 module being utilized. If this is not possible, then the infrared ground reference connection for the DVD-024-0x-x shall be made within 12" of the unit.

6.6 The fiber optic transceiver connector (P2) allows for proper digital audio output to the audio distribution system.

6.7 Mating Connector Information

Model #	Connector Designator	Mating Connector
DVD-024-0x-1	P1	RD15F10JVL0
DVD-024-0x-2	P1	DAMA-15S D20418-2 Female Screwlock
BNC1 Video Input	BNC1	AMPHENOL 31-71013 or equivalent
Optical Digital Audio Output	P2	ST Series optical connector 501380-6 (amp) or equivalent

6.8 Pinout Assignment and Descriptions

DVD-024-01(-03)-x	
Pin #	**Description**
1	+ 28 VDC
2	Ground
3	R+ Audio Output
4	R- Audio Output
5	L+ Audio Output
6	L- Audio Output
7	Data Bus (A)
8	Data Bus (B)
9	Infrared Input +
10	Infrared Input -
11	IR Strap 2
12	IR Strap 3
13	IR Strap 4
14	IR Strap Common
15	Reserved

DVD-024-04-x	
Pin #	**Description**
1	+ 28 VDC
2	Ground
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Data Bus (A)
8	Data Bus (B)
9	Infrared Input +
10	Infrared Input -
11	IR Strap 2
12	IR Strap 3
13	IR Strap 4
14	IR Strap Common
15	Reserved

7.0 Post-Installation Test

7.1 Verify that +28 VDC power has been connected to the unit. The audio signal output of the unit is generally connected to cabin speaker systems in addition to headphone locations. Verify all connections before supplying power to the unit.

7.2 Load the DVD with a DVD disc. Use the DVD-024-0x-x front panel controls or the handheld remote control unit to select **PLAY**. Verify that a picture can be viewed on the appropriate monitor and that the audio can be heard through the speaker/headphone system.

8.0 Troubleshooting

8.1 General Troubleshooting Procedures

- Confirm that +28 VDC power is applied to the proper pins on the unit. Use a voltmeter to verify correct level.
- Reset by removing power from the unit for at least one (1) minute and then reapply power.
- Recheck all connections to the unit for security. Check all harness runs for possible pinching. Recheck all pinouts for application accuracy.
- Utilizing a voltmeter, oscilloscope, or other voltage instrument, verify proper input voltage on the data bus pins to check data bus integrity. Typical measurements are as follows:

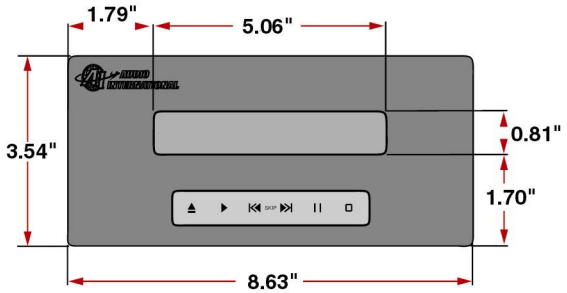
  A-to-Ground : 4.0 to 4.5 VDC
  B-to-Ground : 0.1 to 0.2 VDC
- The RS-485 data bus is a bi-directional bus that does not have a 'bus controller'. The bus uses a differential digital signal that will transmit only when commands are entered via switch selection or other system synchronizing commands. The "A" leg of the bus is HI and the "B" leg LOW.

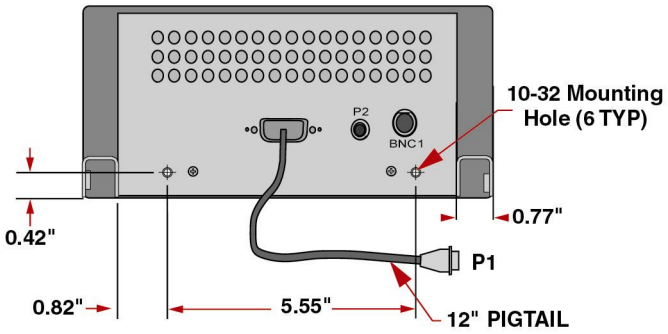
8.2 Troubleshooting Chart

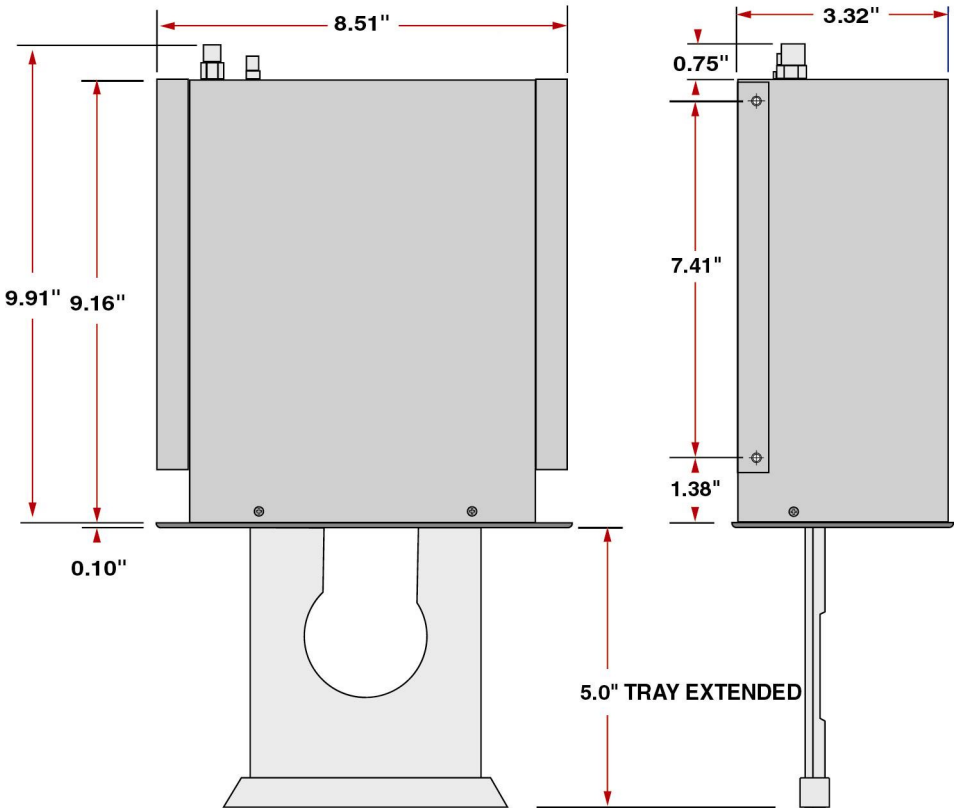
Problem	Possible Cause	Solution
No sound / No picture	➢ Unit is improperly installed	• Verify +28 VDC power and video input is present
	➢ No disc in source unit	• Insert DVD in source unit
	➢ Audio or video system not powered or active	• Verify audio and/or video system is in active mode
Playback not functioning	➢ No disc in source unit	• Insert DVD in source unit
	➢ Disc upside down or not aligned in guide	• Reposition disc
	➢ Incompatible disc in tray	• Replace disc with compatible one
	➢ Dirty disc	• Clean the disc
	➢ Parental lock activated	• Change or cancel parental lock feature
	➢ Menu on the monitor	• Exit the current menu
No power	➢ Circuit breaker has opened	• Reset circuit breaker
Buttons not operating	➢ Moisture may have condensed inside unit	• Allow unit to warm to room temperature and wait until moisture has evaporated
DVD disc cannot be loaded	➢ Foreign object in disc slot	• Remove foreign object

9.0 Reference Drawings

The following diagrams show the unit dimensions, mounting locations, and connector locations for the DVD-024-0x-x.







SECTION III – OPERATION

1.0 General Information

1.1 The DVD-024-0x-x can be operated via front panel 'buttons' or optionally controlled by infrared remote or AI's touch screen panel. Digital codes allow the unit to interface with an infrared handheld remote via an infrared receiver (IFR-9A or IFR-485). Multiple units can be controlled independently using available programming pins.

1.2 Playback options with front 'button' control, remote, or touch screen include play, skip, pause and stop.

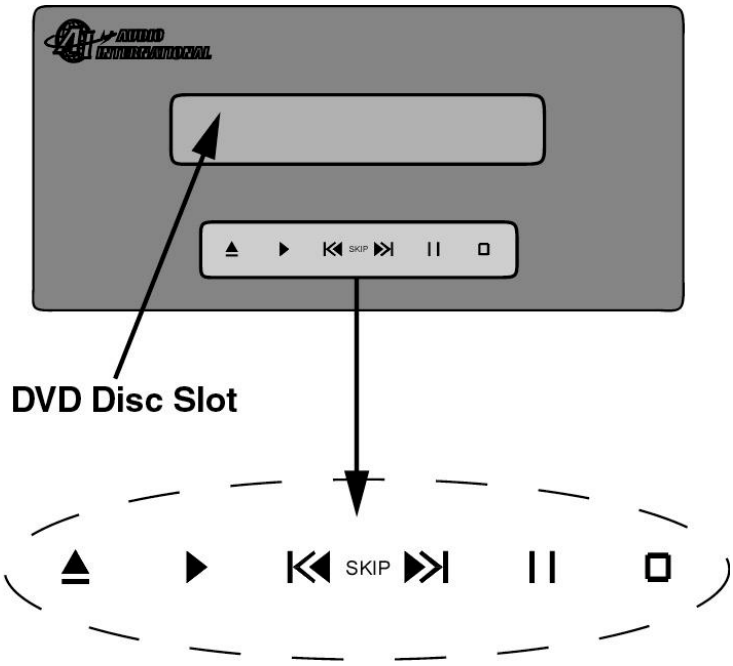
1.3 Before setup or playing a disc, ensure that aircraft power is applied to the player. There are no on/off controls on the unit.

1.4 Activate monitors and speakers from the appropriate control panels. Audio will be supplied through headphones and/or speakers per system design.

1.5 If power is interrupted (>200 msec) or power drops below +18 VDC while a disc is playing, the player will shut down. If a DVD disc is in the player when power is restored, the unit will begin playback from the beginning of the disc automatically. If an audio CD is in the player, the **PLAY** button must be pressed on the front panel or on the infrared remote control before the CD will begin playback.

2.0 FRONT PANEL CONTROLS

ILLUSTRATION OF DVD-024-0x-x FRONT PANEL



The names and functions of the DVD-024-0x-x are as follows:

⏏ Open / Close button – Press to eject a disc from the disc tray or to load a disc onto the disc tray.

▶ Play button – From Main Menu, pressing PLAY selects the highlighted choice. Pressing PLAY will begin playback of a CD. When a DVD is in STOP mode or PAUSED, or a CD is PAUSED, pressing PLAY continues playback of a DVD disc or audio CD.

⏮ Skip (backward) button – During movie or audio play, press to skip to the beginning of the current chapter or CD track. Press SKIP twice to go the beginning of the previous chapter or CD track.

⏭ Skip (forward) button – During movie or audio play, press to skip to the beginning of the next chapter or CD track.

⏸ Pause button – To pause a disc or CD playback. Press PAUSE twice to advance frame by frame through the DVD.

⏹ Stop button – To stop the disc or CD playback. Pressing STOP once holds DVD playback similar to the PAUSE function, but with no video present. Pressing STOP twice stops disc and ends playback mode.

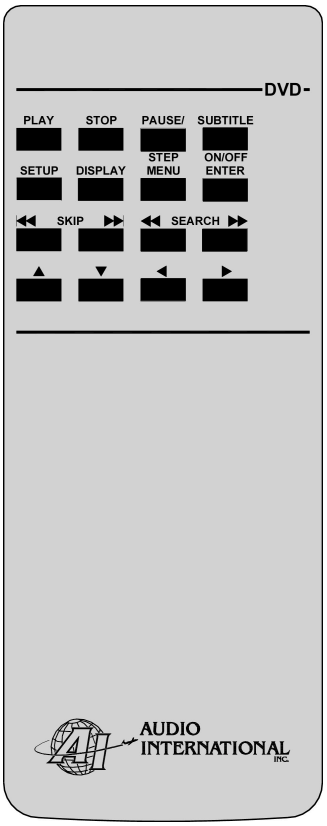
3.0 Basic Playback

3.1 To open the disc tray, press the **OPEN / CLOSE** button. The disc tray will slide forward.

3.2 To play a DVD or CD disc, place the desired disc on the disc tray with the playback side down. Since the DVD will accept either an 8 cm or 12 cm disc, ensure that the disc is placed on the correct guide. Press the **OPEN / CLOSE** button. When the disc tray closes, the CD or DVD will be loaded immediately. CD playback will begin as soon as the disc is loaded. DVDs will either begin playback or go to the Main Menu, depending upon the configuration of the DVD.

4.0 Infrared Remote Control

ILLUSTRATION OF TYPICAL DVD REMOTE CONTROL BUTTONS



4.1 Remote Control User Special Instructions

4.1.1 If batteries begin to lose power, pressing any button will cause all indicators to flash.

4.1.2 To replace batteries, remove the battery compartment cover on the back of the unit. Load four (4) AAA size Alkaline Manganese batteries ensuring the positive (+) and negative (-) terminals on the battery ends match the markings inside the remote control unit. Service life of the batteries is approximately six (6) months, depending on the frequency of use.

4.1.3 Program codes are not lost when batteries are removed or replaced. However, codes may be lost if power is not restored to the remote control within an hour **(CAUTION: FACTORY CODES ARE NOT LOST IF BATTERIES ARE REPLACED WITHIN THE ONE (1) HOUR TIME FRAME. IF ONLY ONE (1) BATTERY IS REMOVED, THEN THE ONE (1) HOUR TIME FRAME STILL APPLIES.)**. To avoid corrosion, replace dead batteries immediately. Never mix old batteries with new ones. The remote control transmitter does not have a power switch. If no function key is pressed within a short interval, power goes 'OFF' automatically to avoid wasting the batteries.

4.1.4 All functions may vary depending upon individual DVD configuration. The steps and situations described below represent common control operation. If different instructions appear on the monitor screen, follow the monitor screen instructions.

4.2 Remote Control Operation

4.2.1 Basic Playback - Playing Back a Disc:

- To start playback from a menu screen, press one (1) of the UP, DOWN, LEFT, or RIGHT arrow buttons (▲/▶/▼/◀) on the Menu Selection keypad to select the desired title. Press the **ENTER** button. The DVD video player will start playback from the selected title.
- To pause playback (still mode), press the **PAUSE / STEP** button during playback. To resume normal playback, press the button a second time.
- To stop playback, press **STOP**.
- To remove the disc, press the **OPEN / CLOSE** button on the front panel. Remove the disc after the tray completely opens. Be sure to press the button a second time to close the tray after the disc has been removed.
- Discs may be played x2 or x8 the normal playing speed, although sound and subtitles are not included in the playback of DVD discs. However, when an audio CD is played back using fast forward or fast reverse, sound may be audible, depending on the configuration of the CD.
- To play back a disc at x2 the normal speed, during normal playback, press ◀◀ (fast reverse search) or ▶▶ (fast forward search). The playback becomes x2 the normal playing speed. Pressing the button again increases the speed to x8 the normal playing speed. Press **PLAY** to resume normal playback.

- To advance a DVD frame by frame, press **PAUSE / STEP** during still mode. Each time the button is pressed, the picture advances one (1) frame. To resume normal playback, press **PLAY**.

- To stop and then resume playback from the same location, press **STOP** at the location desired. Press **PLAY** to resume playback. The function is canceled when the DVD disc has been ejected, an adjustment or change is made to the parental lock function, or a disc menu language setting is made, or if **STOP** is pressed again.

4.2.2 Basic Playback - Locating a Specific DVD Chapter or CD Track

- To locate a specific DVD chapter or CD track using the title menu function, press **MENU**. The title menu appears on the monitor screen. Press one (1) of the arrows on the menu select keypad to highlight the **CHAPTER SELECT** option. Press **ENTER** and use the arrow keys to select the desired chapter or track. Press **ENTER** again. If the title menu is displayed during playback and **MENU** is pressed again without selecting any title, the DVD resumes playback from the point where **MENU** was first pressed.

- To locate a chapter or track, press ⏮ or ⏭ repeatedly to display the chapter or track number desired. The DVD will start playback from the beginning of the selected chapter or track. When ⏮ is pressed, the DVD starts playback from the beginning of the current chapter or track. When ⏮ is pressed twice, the DVD starts playback from the beginning of the preceding chapter or track. Press ⏭ as needed to locate successive chapters or tracks.

4.2.3 Advanced Playback - Selecting Subtitles

- Displayed subtitles can be selected from those included on the DVD disc. Press **SUBTITLE ON/OFF** during playback to activate subtitles. The current subtitle setting appears at the top of the screen for approximately three (3) seconds. To turn off the subtitles, press **SUBTITLE ON/OFF** and the subtitles disappear. During some scenes, the subtitles may not appear immediately after **SUBTITLE ON/OFF** is pressed.

- To select a subtitle language, press **SUBTITLE CHANGE** during playback and the current subtitle language appears. Continue to press **SUBTITLE CHANGE** until the desired language is displayed. It is also possible to change subtitles by selecting the **SUBTITLE CHANGE** option from the main menu and using the arrow keys to select the desired language.

4.2.4 Advanced Playback - Using the On-Screen Display

- The current title number, track number, and playing time of the disc can be viewed on the monitor screen.

- Press **DISPLAY** during the stop mode. The current title number, first chapter number in the current title, time elapsed in the current DVD chapter or CD track and operational status will be displayed.

- Pressing **DISPLAY** again will change the chapter/track time elapsed to chapter/track time remaining. The other aspects of the display will remain unchanged.

- Pressing **DISPLAY** a third time will change the chapter/track time remaining to total title time elapsed. The other aspects of the display will remain unchanged.

- Pressing **DISPLAY** a fourth time will change the total title time elapsed to total title time remaining. The other aspects of the display will remain unchanged.

- Pressing **DISPLAY** for the fifth time turns the display off.

4.2.5 Function Setup-Customizing the Function Settings

4.2.5.1 Displaying the SET UP MENU screen:

- The SET UP MENU may be used to select DVD menu default selections regardless of DVD configuration. Press **SETUP** during the stop mode. The SET UP MENU screen will appear. The SET UP MENU screen disappears if the **SETUP** button is pressed while it is displayed or if **DONE** from the SET UP MENU screen is selected.

- The SET UP MENU screen will ask you to select a setting category from the following: LANGUAGE, TV CONTROL, AUDIO CONTROL, and DONE. The selected category will provide the setting details using the succeeding screen(s). Choose among the selections using the arrow keys. Press **ENTER** when the desired selection is highlighted. Functions not listed are not supported.

- The settings return to their default modes upon power down.

4.2.5.2 Language Settings:

- After selecting LANGUAGE on the SET UP MENU screen, press ▲ or ▼ to select the category desired (choices include: On Screen Display, DVD Menu, Audio, and Subtitle). Press **ENTER**. The setting screen of the selected item will appear. Some DVD discs may not include pre-selected languages. In this case, the DVD automatically plays back the disc's initial language offering.

- When **SCREEN DISPLAY** is selected, choose a preferred language by pressing ◀ or ▶ and then pressing **ENTER**.

- When **DISC MENU** is selected, choose a preferred language by pressing one (1) of the arrow buttons and then press **ENTER**. To change the language while a disc is inserted, press the **MENU** button to display the disc menu. Press the **SETUP** button. If the disc menu has only one (1) language, the display does not appear. Press the **SETUP** button repeatedly until the desired language is displayed. Press the **ENTER** button. The disc menu is displayed in the selected language. Press **SETUP** and the setting screen will disappear. If the **RETURN** button is pressed while a menu appears on the screen, the previous menu screen will be displayed.

- When AUDIO is selected, choose a preferred language by pressing one (1) of the arrow buttons and then press **ENTER**. Some DVD discs contain closed captioning information. When the DESCRIPTIVE SERVICE option is set to 'ON', the DVD displays the closed captioning information.

- When **SUBTITLE** is selected, choose a preferred language by pressing one (1) of the arrow buttons and then press **ENTER**. Some DVD discs contain special subtitles, an enhancement of closed captioning for hearing impaired persons. When the EXTENDED FEATURES is 'ON', press the **SUBTITLE** button and the DVD will automatically display these special subtitles. Some DVD discs may not include a pre-selected language. In this case, the DVD automatically displays subtitles consistent with the disc's initial language setting.

4.2.5.3 TV Control Settings:

- Viewing Format Options- It is possible to change viewing format options from the TV CONTROL menu. Supported viewing format options are 4:3 (normal), 4:3 Pan Scan (Pan-Scan displays pictures cropped to fill the screen; either or both sides of the picture may be cut off), and 16:9 (Wide). Use the ◀ or ▶ arrow keys to view the options and press **ENTER** to select the desired setting.

- The Background may be changed from Blue to Black. Use the arrow keys to choose the desired background and press **ENTER** to select.

- The Parental Control option may be used to lock out disks from certain countries or those of certain rating levels (“PG-13” or “R” rated movies, for example).

4.2.5.4 Audio Settings:

- Digital Out- It is possible to change the Audio format using the DIGITAL OUT option. The options are: PCM, and Dolby Digital/PCM (the default selection). Use the arrow keys to select the option. Press **ENTER**. The setting screen of the selected item will appear.